Source: August 30, 2018 MCE Technical Committee
"MCE Greenhouse Gas Emission Analysis (for 2016)"

2016 Emission Calculation - MCE Total Portfolio (Light Green + Deep Green)	MWh Purchased	% Total	Total Emissions (metric tons)	Emissions Rate (metric tons CO2e/MWh)	Total Emissions (lbs)	Emissions Rate (lbs CO2e/MWh)
Total Renewable Energy (all RPS-Eligible)	1,198,664	56%	-	-	-	-
Zero Carbon	277,039	13%	-	-	-	-
Natural Gas	250,075	12%	97,822	0.391	215,659,512	862
System Power	399,313	19%	170,906	0.428	376,782,524	944
Totals	*2,125,091*	*100%*	*268,728*	*0.126*	*592,442,037*	279

Corrected Analysis for 2016, reflecting the brown power deliveries concealed in "Total Renewable Energy"

MCE 2016 Actual Emisson Calculation MCE Total Portfolio (Light Green + Deep Green)	MWh Purchased	% Total	Total Emissions (metric tons)	Emissions Rate (metric tons CO2e/MWh	Total Emissions (lbs)	Emissions Rate (lbs CO2e/MWh)
Total Renewable Enegy (MCE claims "all RPS-eligible")	per below:					
Category 1 (bundled delivered (genuine delivered))	819,605	39%	-	-	-	-
Category 2 (firm-and-shape RECs)*	**311,000**	14%	133,108	0.428	**293,449,897**	944
Category 3 (unbundled RECs) **	**68,059**	3%	29,129	0.428	**64,217,793**	944
Zero Carbon	277,039	13%	-	-	-	-
Naural Gas	250,075	12%	97,822	0.391	215,659,512	862
System Power aka "Unspecified power" or "Generic Purchases")	399,313	19%	170,906	0.428	376,782,524	944
Totals	2,125,091	100%	430,965	0.203	950,109,726	447

* MCE RPS Report to CPUC, dated August 31, 2016. Page 6 of 119. MCE delivers "Unspecified sources" energy, which CARB says has emission rate of 0.428 MT/MWh.
See accompanying page from MCE's 2016 RPS Compliance Report to CPUC.

** MCE Power Source Disclosure report to California Energy Commission, for year ending December 31, 2016, Schedule 1. MCE delivers "Unspecified sources" energy. (RPS report identifies MCE to use 68,000 unbundled RECs. Actual use was 68,059, as shown in Sch 1, ostensibly to undercut PG&E's emission rate.)
See accompanying page from MCE's Power Source Disclosure report to California Energy Commission.

MCE's cumulative GHG additions (lbs) to atmosphere
based upon correct methodology on previous page

MCE's 2016 (corrected) GHG emission rate = 447 lbs CO2e per MWh
PG&E's 2016 GHG emission rate = 294 lbs CO2e per MWh
MCE's *net added* GHGs to atmosphere = 153 lbs CO2e per MWh

153 lbs x MCE's 2016 annual MWh sales 2,125,091 = 325,138,923 lbs add to atmosphere

2016:	325,138,923
2015:	225,539,978
2014:	218,144,435
2013:	255,262,825
2012:	38,247,483
2011:	19,541,638
2010:	(11,647,276)
Total	**1,070,288,006** pounds of GHG added to atmosphere by MCE compared to same volume of energy supplied by PG&E.

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Continue Implementation and Administration of California Renewables Portfolio Standard Program.	Rulemaking 15-02-020 (Filed February 26, 2015)

Marin Clean Energy

33% RPS Compliance Report

Reporting RPS Compliance Status for the First Compliance Period (2011-2013)

August 31, 2016

Name: Dawn Weisz
Title: Chief Executive Officer
Email: dweisz@mcecleanenergy.org
Phone: (415) 464-6020
Fax: (415) 459-8095
Address: 1125 Tamalpais Avenue, San Rafael, CA 94901

First year of operation: Pre-2011

Pre-2011
2011
2012
2013
2014
2015
2016

Data Reported by:
Marin Clean Energy (MCE)
August 31, 2018

Compliance Summary and Charts

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Retail Sales (MWh)	185,493	570,144	1,110,487	1,254,794	1,695,274	2,125,091	2,804,277	4,565,481	5,275,252	5,306,098	5,339,682	5,377,627	5,422,939	5,475,612	5,537,608
Annual % Target	20.0%	20.0%	20.0%	21.7%	23.3%	25.0%	27.0%	29.0%	31.0%	33.0%	34.8%	36.5%	38.3%	40.0%	41.7%
Annual RPS Target	37,099	114,029	222,097	272,290	394,999	531,273	757,155	1,323,989	1,635,328	1,751,012	1,858,209	1,962,834	2,076,986	2,190,245	2,309,182
Procurement Quantity Requirement	373,225			1,198,562			5,467,485				8,088,274				

Resource Mix

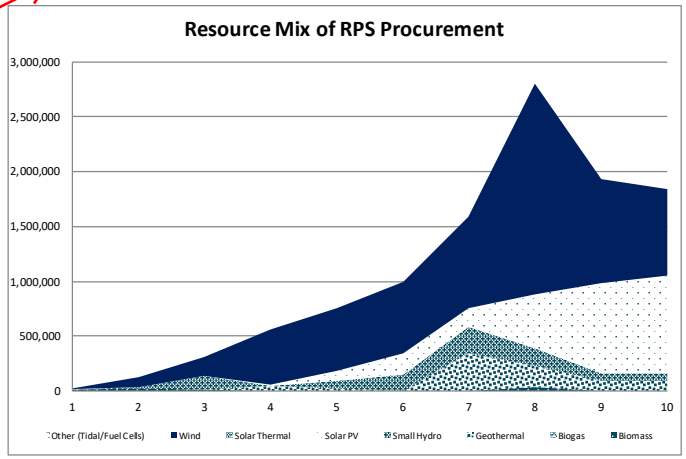
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Total RPS Procurement	**25,521**	**123,507**	**311,834**	**562,427**	**754,350**	**992,300**	**1,592,542**	**2,803,761**	**1,938,119**	**1,844,261**	**2,403,253**	**2,396,753**	**2,091,262**	**2,056,681**	**2,050,204**
Biomass	17,319	22,890	11,091	0	0	0	0	36,000	0	0	0	0	0	0	0
Biogas: Digester gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Biogas: Landfill gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Biodiesel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Muni Solid Waste	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bioenergy Subtotal	17,319	22,890	11,091	0	0	0	0	36,000	0	0	0	0	0	0	0
Geothermal	0	0	0	51,280	27,244	0	340,692	188,000	88,000	88,000	88,000	88,000	88,000	88,000	88,000
Small Hydro	0	10,000	125,231	0	63,878	144,196	245,237	168,400	70,200	70,000	70,000	70,000	70,000	70,000	70,000
Conduit Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Water supply and conveyance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Solar PV	0	165	1,807	2,964	95,959	195,736	173,632	483,361	827,819	898,161	1,478,153	1,471,653	1,466,162	1,460,681	1,454,204
Solar Thermal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wind	8,202	90,452	173,705	508,183	567,269	652,368	832,981	1,928,000	952,100	788,100	767,100	767,100	467,100	438,000	438,000
Ocean wave	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ocean thermal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tidal current	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fuel Cells	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

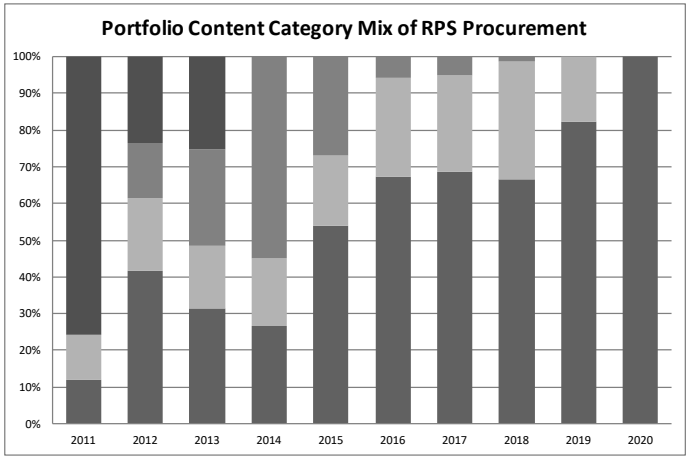
Portfolio Content Category Mix

Firm and shape RECs aka "PCC2"

Unbundled RECs aka "PCC3"

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Category 0 RECs	39,119	39,238	92,576	0	0	0	0	0	0	0	0	0	0	0	0
Category 1 RECs	6,203	69,553	114,693	171,634	467,921	781,561	1,201,208	1,922,761	1,658,119	1,924,261	2,483,253	2,476,753	2,171,262	2,136,681	2,130,204
Category 2 RECs	6,203	32,731	62,094	120,282	164,801	311,000	458,046	925,000	360,000	0	0	0	0	0	0
Category 3 RECs	0	25,000	95,000	354,703	233,643	68,059	90,000	36,000	0	0	0	0	0	0	0





MCE_2016 Light Green_Power Source Disclosure filing to CA Energy Commission

ANNUAL REPORT TO THE CALIFORNIA ENERGY COMMISSION: Power Source Disclosure Program

For the Year Ending December 31, 2016
SCHEDULE 1: RETAIL SALES
Applicable to: Load Serving Entities

INSTRUCTIONS: Enter information about power procurements supporting all electricity products for which your company is filing the Annual Report. If you need additional rows, add them from the INSERT menu. Please list all purchases (Specified and Unspecified purchases) as line items under the Facility Name heading. If a

ALL PROCUREMENTS (Specified and Unspecified)

Facility Name	Unit No.	Fuel Type	Location (State or Province)	WREGIS GU ID	EIA ID	FERC QF ID	Gross MWh Procured	MWh Resold or Self-Consumed	Net MWh Procured		
CGTEF - Calabasas Gas-to-Energy Facility (REC Only)		Biogas	CA	W1376	57163		517	0	517	517	
Clearwater Paper (Lewiston) (REC Only)		Biomass	ID	W128, W129	50637		2700	0	2700	2,700	
TEF - GEN1 - Total Energy Facility (REC Only)	1	Biogas	CA	W866	10091		21387	0	21387	21,387	
TEF - GEN2 - Total Energy Facility (REC Only)	2	Biogas	CA	W867	10091		15097	0	15097	15,097	
TEF - GEN3 - Total Energy Facility (REC Only)	3	Biogas	CA	W868	10091		15089	0	15089	15,089	
TEF - GEN4 - Total Energy Facility (REC Only)	4	Biogas	CA	W3412	10091		13269	0	13269	13,269	PCC3 RECs
G2 Hay Road		Biogas	CA	W3547	58320		973	0	973		68,059
G2 Ostrom Road		Biogas	CA	W1565	57133		10488	0	10488		
G2 Ostrom Road, Unit 2	2	Biogas	CA	W3932	57133		1209	0	1209		
Lincoln Landfill Power Plant, Units 1 & 2	1, 2	Biogas	CA	W2318	57988		9169	0	9169		
Lincoln Landfill Power Plant, Units 3	3	Biogas	CA	W2319	57988		4585	0	4585		
Lincoln Landfill Power Plant, Units 4, 5 &6	4, 5, 6	Biogas	CA	W3188	57988		13837	0	13837		
Camanche - Camanche 1,2,&3	1, 2, 3	Eligible Hydro	CA	W243	537		15126	0	15126		
Lewiston Powerplant - Lewiston		Eligible Hydro	CA	W1108	977		19	0	19		
Nimbus Powerplant - Nimbus Plant (2)		Eligible Hydro	CA	W1161	444		406	0	406		
Pardee - Pardee 1	1	Eligible Hydro	CA	W233	376		38751	0	38751		
Pardee - Pardee 2	2	Eligible Hydro	CA	W241	376		45776	0	45776		
Pardee - Pardee 3	3	Eligible Hydro	CA	W242	376		44094	0	44094		
Stampede Powerplant - Stampede (2)	2	Eligible Hydro	CA	W1177	7066		24	0	24		
Folsom Unit 1 - Folsom Powerplant	1	Large Hydroel	CA	W1156	441		1034	0	1034		
Folsom Unit 2 - Folsom Powerplant	2	Large Hydroel	CA	W1157	441		1117	0	1117		
Folsom Unit 3 - Folsom Powerplant	3	Large Hydroel	CA	W1158	441		1466	0	1466		
Gianelli Powerplant - Gianelli (2)	2	Large Hydroel	CA	W1288	448		288	0	288		
J.F. Carr Unit 1 - J.F. Carr Powerplant		Large Hydroel	CA	W1163	442		433	0	433		
J.F. Carr Unit 1 - J.F. Carr Powerplant		Large Hydroel	CA	W1164	442		379	0	379		
Keswick Powerplant - Keswick Powerplant (3)		Large Hydroel	CA	W1165	443		2029	0	2029		
New Melones Unit 1 - New Melones Powerplant		Large Hydroel	CA	W1159	6158		679	0	679		
New Melones Unit 2 - New Melones Powerplant		Large Hydroel	CA	W1160	6158		611	0	611		
O'Neill Powerplant - O'Neill (3)		Large Hydroel	CA	W1167	446		56	0	56		
Shasta Powerplant - Shasta Unit 1	1	Large Hydroel	CA	W1168	445		2289	0	2289		
Shasta Powerplant - Shasta Unit 2	2	Large Hydroel	CA	W1169	445		1671	0	1671		
Shasta Powerplant - Shasta Unit 3	3	Large Hydroel	CA	W1170	445		2151	0	2151		
Shasta Powerplant - Shasta Unit 4	4	Large Hydroel	CA	W1171	445		2128	0	2128		
Shasta Powerplant - Shasta Unit 5	5	Large Hydroel	CA	W1172	445		2398	0	2398		
Spring Creek Powerplant - Spring Creek Unit 1	1	Large Hydroel	CA	W1173	450		211	0	211		
Spring Creek Powerplant - Spring Creek Unit 2	2	Large Hydroel	CA	W1174	450		970	0	970		
Trinity Powerplant - Trinity Unit 1	1	Large Hydroel	CA	W1175	451		570	0	570		
Trinity Powerplant - Trinity Unit 2	2	Large Hydroel	CA	W1176	451		1121	0	1121		
GCPD, Priest Rapids & Wanapum Hydroelectric Project		Large Hydroel	WA		3887, 3888		255438	0	255438		
City of Corcoran Solar		Solar	CA	W4150	58374		29660	0	29660		
Cost Plus Plaza		Solar	CA	W5192	NA		113	0	113		
Freethy Industrial Park Unit #1		Solar	CA	W5190	NA		260	0	260		
Freethy Industrial Park Unit #2		Solar	CA	W5191	NA		284	0	284		
Goose Lake Solar		Solar	CA	W4151	59086		22525	0	22525		
Henrietta Solar Plant - Parrey, LLC		Solar	CA	W5056	NA		74018	0	74018		
Kansas		Solar	CA	W4192	58985		53739	0	53739		
Marin Carport - Buck Institute		Solar	CA	W4903	NA		825	0	825		
San Rafael Airport		Solar	CA	W2969	NA		1631	0	1631		
Biglow Canyon Wind Farm - Biglow Canyon 2	2	Wind	OR	W1268	56485		15896	0	15896		
Biglow Canyon Wind Farm - Biglow Canyon 3	3	Wind	OR	W1588	56485		34363	0	34363		
Cedar Creek - Cedar Creek		Wind	CO	W892	56371		118749	0	118749		
Cedar Creek II - Cedar Creek II	2	Wind	CO	W1900	56371		21251	0	21251		
Harvest Wind		Wind	WA	W1306	57152		11884	0	11884		
Limon Wind 1	1	Wind	CO	W3157	58126		19662	0	19662		
Limon Wind III	3	Wind	CO	W4269	59083		31338	0	31338		
Rising Tree Wind Farm III LLC	3	Wind	CA	W4612	59236		297919	0	297919		
Shiloh I Wind Project		Wind	CA	W231	56362		43449	0	43449		
Solano Wind Phase 3		Wind	CA	W2756	58092		31203	0	31203		
Tucannon River Wind Farm - Tucannon River 1	1	Wind	WA	W4482	58571		49567	0	49567		
Tucannon River Wind Farm - Tucannon River 2	2	Wind	WA	W4483	58571		20174	0	20174		
White Creek Wind 1	1	Wind	WA	W360	56487		16913	0	16913		
Calpine Delta Energy Center		Natural Gas	CA		55333		250075	0	250075		
Unspecified Power		Unspecified P	CAISO	NA	NA		399313	0	399313		

PCC2: reconciliation per 8.31.2017 RPS Compliance Report's contract details	PCC1 included in PSD MWh volume on respective line
15,896	0
34,363	0
118,749	0
21,251	0
5,620	6,264
19,662	0
31,338	0
n/a	n/a
n/a	n/a
n/a	n/a
49,567	0
20,174	0
0	16,913
316,620	23,177

Total Net Purchases	2,074,366
Total Retail Sales	2,074,367

RPS PCC2 reported MWh
311,000

Excess PCC2
5,620

Line items in yellow and red highlights represent brown power; MCE fails to disclose this delivered dirty power and associated GHG emissions.

MCE_2016 Deep Green_Power Source Disclosure Filing to CA Energy Commission

ANNUAL REPORT TO THE CALIFORNIA ENERGY COMMISSION: Power Source Disclosure Program

For the Year Ending December 31, 2016
SCHEDULE 1: RETAIL SALES
Applicable to: Load Serving Entities

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ALL PROCUREMENTS (Specified and Unspecified)									
Facility Name	Unit No.	Fuel Type	Location (State or Province)	WREGIS GU ID	EIA ID	FERC QF ID	Gross MWh Procured	MWh Resold or Self-Consumed	Net MWh Procured
G2 Hay Road		Biogas	CA	W3547	58320		10948	0	10948
G2 Ostrom Road		Biogas	CA	W1565	57133		1733	0	1733
Goose Lake Solar		Solar	CA	W4151	59086		12681	0	12681
Rising Tree Wind Farm III LLC	3	Wind	CA	W4612	59236		25363	0	25363
									0
									0

Total Net Purchases	50,725
Total Retail Sales	50,724